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MODERN SURGERY OF THE ESOPHAGUS

CLARENCE E. BIRD, M.D.
116 WATERMAN STREET, PROVIDENCE

This brief presentation summarizes the methods of those who are laboring the world over in the difficult and comparatively little known field of esophageal surgery. What I shall say today emphasizes, also, the results which may be expected from surgery carried out by the cervical, thoracic and abdominal routes; surgery, undertaken when endoscopic measures have proven insufficient to meet the situation. A moderate personal experience in endoscopy, and an acquaintance with the work of others, has given me great respect for the value of the esophagoscope both in diagnosis and treatment. Certainly it is indispensable in diagnosis in general, in the removal of foreign bodies, and in the treatment of benign strictures. However, there are many circumstances under which the esophagoscopist is able to diagnose but not to cure, and in which attack from without appears to offer the best means of relief for the patient. In the treatment of carcinoma of the esophagus, radiation has been disappointing (Watson, 1936).

The splendid pioneer work of Biondi (1895), Rehn (1898), Marwedel (1903), Mikulicz (1904), Sauerbruch (1905), Voelcker (1908), Meyer (1913, 1914, 1915), Zaaijer (1913), Torek (1913, 1925), Lilienthal (1921), and many others, in surgery of the esophagus, received severe set-backs during the years between 1913 and 1930, as the result of failures of operations for carcinoma (Bunnell, 1922; Fischer, 1923; Torek, 1929). Recently, on the other hand, and to the great encouragement of everyone, there have been a number of successes (Turner, 1931, 1933, 1934; Muir, 1936; King, 1936; Edwards, 1936; Brunn and Stephens, 1937; Garlock, 3 cases, 1938). The basic principles on which these attainments have been built are beginning to be recognized widely; they apply to all surgical problems of the esophagus. Thus the field of usefulness of surgery of this structure is gradually broadening.

The ability of the skilled surgeon to expose adequately any region of the thorax, under conditions which will not shock the patient, is in itself an outstanding attainment. Proficiency in this matter has been developed slowly and depends upon many factors, among which the most important are: (1) preoperative cleansing of the mouth and care of the teeth; (2) repeated lavage of the esophagus before operation; (3) preliminary pneumothorax on the affected side; (4) positive pressure intratracheal anesthesia with intermittent short pauses in the operation for more or less complete inflation of the lungs; (5) slow, intravenous administration of fluids from start to finish of the procedure; (6) sharp dissection, preferably with endothermic control of vessels in the chest wall; (7) temporary paralysis of the hemidiaphragm on the side of operation; (8) avoidance of unnecessary traction upon, and retraction of, intrathoracic structures; (9) hermetic closure of the thoracic wall with the aid of pericostal sutures, the lungs being fully expanded; (10) dependent, closed-system catheter drainage of the pleural space; and (11) transfusion of blood and administration of oxygen immediately postoperatively.

However, the most expert operation in regard to the aforementioned details of opening the chest, operating within it, and closing it again, will not save a patient if the mediastinum and pleura have become infected by the dangerous organisms of the esophageal lumen. Means are gradually being evolved to prevent this contamination. For example, the blind ends of certain cervical and thoracic esophageal diverticula may be sutured upward so that the sacs will remain empty, in this way relieving symptoms without opening the lumen of the esophagus. This is prevention of infection by completely avoiding the source of the organisms. If an esophagogastrostomy is performed for intractable functional stenosis or cardiospasm, the

From the Department of Surgery, University of Louisville. Read before the Rhode Island Medical Society, at the one hundred and twenty-seventh Annual Meeting, Providence, June 1-2, 1938.

dilated esophagus can be coaxed downward and the peritoneum of the hiatus closed completely about it before incisions into the esophagus and stomach are made. Thus, the field of attack is transferred from the thorax into the abdomen. This is prevention of infection by excluding the mediastinum before contamination is possible. Again, in removal of a carcinoma of the thoracic esophagus, the entire organ is usually brought out at the neck, thus minimizing the chances of mediastinal infection by removing the source bodily. Furthermore, whenever the esophagus is severed, this is done between clamps or stout ties, with the thermal cautery, and the stumps are seared until thoroughly dehydrated. The lower end is usually inverted into itself or below the diaphragm by one or more purse-string sutures. No stitches are ever allowed to enter the lumen. This is prevention of infection by complete destruction of organisms and exclusion of the source of infection.

No attempt is ever made to close the proximal end of the severed gullet, because the accumulated esophageal secretions and saliva, driven like a water-hammer by peristalsis and gravity, will always leak out eventually, no matter how tight a closure is made. There are two alternatives: (1) to bring the entire esophagus out through the neck, as mentioned above, and (2) to deliver the aseptically severed end of the upper segment, if it is long enough, through the posterior chest wall to the skin (Zaaijer, 1913; Hedblom, 1922). Of course, in cancer, another method of removing the source of infection bodily is to divide the esophagus in the neck, bring the proximal end out to the skin, then protect the ligatured and cauterized lower stump with a thin rubber cover, free the thoracic esophagus, pull it into the abdominal cavity, and remove the whole mass transperitoneally at the level of the cardia, or lower if the stomach is also involved. (Turner, 1931).

The matter of drainage is of the greatest importance. When the mediastinum is already infected, or if contamination can be foretold, the approach to the space is made posteriorly and extrapleurally. Under these circumstances the opening of either pleura is a serious complication which must be met by suturing the defect and draining the pleural space by a closed catheter system. If the posterior wound must be packed open, the possibility of pyopneumothorax with a sucking wound is considerable. Therefore, if the source of the contamination has been removed, it may be better in some instances to leave the mediastinum and pleura in communication, with a catheter in the pleural space for closed drainage, and to close the posterior wound tightly. This latter method may be used also if the mediastinum becomes contaminated during a transpleural operation, in which case drainage is effected by closed-system catheters led out of the chest under a water-seal, unilaterally or bilaterally. Slight negative pressure may be applied. Open drains cannot be left, because a sucking wound and pyopneumothorax will result.

If, during a transabdominal hiatal operation, the mediastinum has been contaminated and the pleura has not been opened, the lower mediastinum may be drained through the abdominal wound, care being taken that no foreign material is left in such a position as to compromise healing of suture lines.

These many details are mentioned partly because they indicate the lessons learned by thoracic surgeons as the result of many tragic experiences and fewer triumphs over a period of sixty years, and partly because they afford evidence of the resourcefulness which is bringing surgery of this region into position to meet some of the problems which are presented to it today.

What measure of success has already been attained? The following are the lesions for which much is offered: (1) perforations of the esophagus by missiles, foreign bodies, bougies, the esophagoscope or by spontaneous rupture; (2) periesophageal abscesses; (3) foreign bodies which cannot be removed through the esophagoscope; (4) intractable functional stenosis, or cardiospasm; (5) a limited but significant number of carcinomas of the esophagus and cardia of the stomach; (6) certain types of diverticula; (7) a few benign tumors; (8) impermeable strictures; and finally, (9) congenital atresias, with or without tracheo-esophageal fistulas.

I wish to consider these lesions in order, briefly:

Perforations

The greatest concern should be felt when the esophagus has been perforated from within or without. If a foreign body is present it should be removed through an esophagoscope; the patient is placed in bed in a head-down position; no food or water is allowed; saliva is expectorated; dextrose and salts are supplied intravenously. Any increase in evidence of sepsis, or even a stationary condition of the patient, is unsatisfactory, and unless fever, pulse rate and local tenderness begin to subside

within a few hours, the esophagus should be exposed (Klestadt, 1928). This may be done either by cervical or posterior mediastinal extrapleural esophagotomy. The wound is packed open. Every possible precaution is taken to prevent open pyopneumothorax. If one or both pleural cavities have been contaminated by the perforation, the pleural space or spaces are drained by closed-system catheters which must be made to function continuously.

Periesophageal Abscesses

Localized periesophageal abscesses occur most often as the result of perforation of neglected foreign bodies, or they may form as the end result of bullet or knife wounds of the cervical esophagus. Sometimes a small perforating foreign body will not be visible by the esophagoscope at a late stage, or it may have perforated into the purulent cavity. A periesophageal abscess may occasionally be drained through the endoscope at the time a foreign body is searched for, by dilating or incising the opening already present in the esophagus (Kramer, 1929; Vogel, 1932). In most instances, however, there will be no safe means of entering the cavity by way of the lumen. After careful localization by physical signs, roentgenography, and esophagoscopy, cervical or posterior extrapleural exposure and drainage of the abscess is indicated.

Foreign Bodies Which Cannot Be Removed Through the Esophagoscope

Foreign bodies which cannot be removed through an esophagoscope are practically non-existent at the present day. Almost any kind of large foreign body can be cut up and removed piece-meal. However, in years gone by, many extraneous bodies were removed by incision in the neck, or by way of the posterior mediastinum, or by reaching up from within the stomach through the cardia. Even at present, failure of safe extraction through the esophagoscope forces esophagotomy or transgastric removal.

Intractable Functional Stenosis

(Cardiospasm, Achalasia of the Cardia, Idiopathic Dilation, Phrenospasm)

Every case of functional stenosis, whether of the infant or adult type, must be studied roentgenographically and esophagoscopically, to rule out webs, diaphragms, partial atresia, ulcer, inflammatory stricture, hiatus hernia, diverticulum and carcinoma (Vinson and Moersch, 1928; Vinson, 1936). Infants and children and most adults respond to hydrostatic dilatation. This may be supplemented by daily lavages of the dilated sac to reduce inflammation. Papaverine hydrochloride given subcutaneously or by mouth in 45 to 120 milligram doses will often empty the esophagus dramatically, by paralyzing the smooth muscle of the cardia, but this treatment should not be repeated indefinitely (Stein, 1915; Howarth, 1922). Degeneration of the endings of the vagus nerves within the wall of the esophagus has been demonstrated to be at least one important factor in the causation of functional stenosis (Rake, 1927; Guns, 1928; Tamiya, 1929; Scrimger, 1931). The result is an overbalance of power in the circular smooth muscle of the cardia, which is supplied at least in large part by sympathetic fibers (Knight and Adamson, 1935; Knight, 1935). In one case of moderate severity accompanied by pain and in which hydrostatic dilatation was ineffective, permanent paralysis of the sympathetic rami was achieved by a bilateral cervicodorsal ganglionectomy and ramicectomy by the posterior route, with permanent cure (Craig, Moersch and Vinson, 1934). This result could also be accomplished, at least temporarily, by alcohol injections of the stellate and upper thoracic ganglia. However, local sympathetectomies by the abdominal route show promise in the relief of cases with moderate dilatation and failure of cure by hydrostatic bags. Abdominal sympathetectomy (Recalde, 1932; Knight, 1935) undoubtedly will be used more often than cervicodorsal, because it allows exploration of the lower esophagus and is unaccompanied by the undesirable Horner's syndrome.

If the dilatation has become extreme, so that the lower portion of the S-shaped gullet depresses the diaphragm, and if this sac lies below the entrance of the esophagus into the stomach (Lambert, 1914), some of these cases require mobilization of and straightening out of the esophagus. The lower portion of the dilated gullet is freed from its mediastinal surroundings and then gently pulled down and sutured to the borders of the widened peritoneal and diaphragmatic hiatus. One of two additional steps should be taken in order to insure relief of the patient: (1) extramucous cardioplasty (Heller, 1913; Delbet, 1929; Charbonnel and Massé, 1932), which is similar to the Ramstedt operation for pyloric stenosis of infancy, and (2) esophagogastrostomy (Heyrovsky, 1912; Bull, 1925; Häggström, 1930; Churchill, 1935). The fifty-six-year old negress whose film is shown

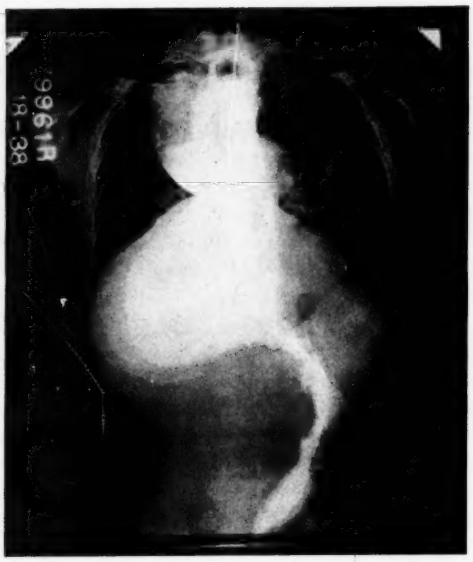

FIGURE 1. *The type of advanced functional dilatation which requires treatment by operation.*

(Fig. 1), was operated upon by the speaker several years ago, using the out-moded Mikulicz procedure of transgastric digital dilatation of the cardia. When the forefinger was introduced it felt as if it were in the grip of a long sphincter. Three fingers were eventually passed. She has been only partially relieved and must occasionally wash her esophagus out, but has gained weight and eats everything.

Carcinoma

Early carcinoma of the cervical esophagus has been treated by excision for many years. A few cures have resulted, but the larynx has usually been excised with the mass and the patients have not been able to swallow well in spite of attempts at plastic reconstruction of the cervical esophagus by the use of skin flaps. Functionally they have been most unhappy and recurrences in the wound or in regional lymphatic nodes have been frequent. These cervical growths are most common in females and are usually of the squamous variety.

Carcinoma of the thoracic and terminal esophagus occurs in males in the proportion of 4:1. At the cardia it is likely to arise from glandular tissue, sometimes from the upper stomach, in which case it encroaches on the wall and lumen of the esophagus as the disease advances upward. In the thoracic esophagus most of the growths are squamous in type and are found at or below the arch of the aorta.

The recent encouraging successful excisions have been in the thoracic and in the lower esophageal types. As preliminary steps in the operations, exploration of the liver and upper abdominal lymphatic nodes, and gastrostomy or jejunostomy are carried out routinely. Details of technique of the operations cannot be given, but the principles have been outlined, and it now seems feasible to excise some of these tumors and to supply an artificial esophagus which will function satisfactorily.

The most interesting problem is to determine how many of the cases will be operable. Opinions and statistics vary greatly as to this point, but the true figure of operability seems to lie at about five per cent. This takes into consideration the questions of general condition of the patient and the presence or absence of regional infiltration or distant metastases. Probably at least half of the patients who present themselves with carcinoma of the thoracic esophagus or cardia should be explored abdominally and about fifteen per cent additionally by the thoracic route to determine operability. A higher percentage of operability will undoubtedly ensue when esophagoscopies are done earlier for symptoms suggestive of disorders of function in the esophagus and cardia of the stomach, and when internists and endoscopists refer patients for operation immediately after a diagnosis of carcinoma is made (Meyer, 1913; Jackson, 1925; Turner, 1936).

Diverticula

Although cervical diverticula arise almost always in the posterior midline of the pharynx just above the anatomical origin of the esophagus, the sacs hang downward and pull the orifice into the position of the esophagus. These diverticula, even though they occur as a rule in older people, are now excised with practically no mortality (Babcock and Jackson, 1931). In most hands, the two-stage method is practised (Goldmann, 1909; Kingman, 1923; Lahey, 1937), the first stage relieving symptoms by inverting and emptying the sac (König, 1922), and also, which is more important, allowing the formation of a wall of sterile adhesions which prevents descent of infection into the mediastinum when the sac is excised at the second stage. Healing often occurs primarily after the second operation, and fistulas, recurrences and strictures are becoming very uncommon.

The small traction diverticula which result from the lateral pull of healing tuberculous lymph nodes near the bifurcation of the trachea rarely cause

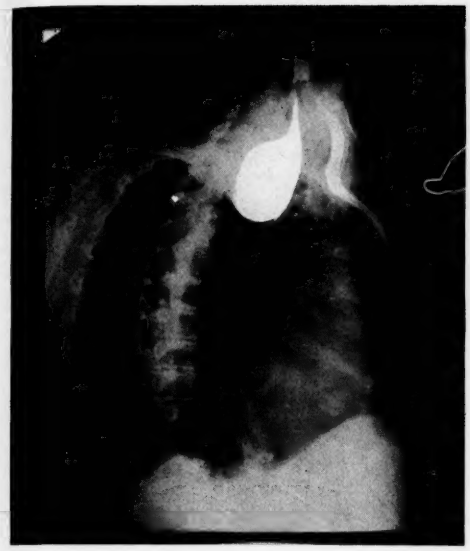

FIGURE 2. *A large pharyngeal diverticulum of the common variety; also a small, asymptomatic diverticulum just above the diaphragm.*

symptoms, but the counterpart of the cervical pulsion diverticulum occurs occasionally just above the diaphragm, and there may dilate and bring about troublesome dysphagia. If, by an abdominal approach, such a diverticulum can be brought down together with the terminal esophagus into the peritoneal cavity, the sac can be excised or it can be anastomosed with the fundus of the stomach in such a way as to drain it permanently (Lotheissen, 1908). If the neck of the sac arises at too high a level for this procedure, the proposal has been made (König, 1922), and successfully carried out (Lahey 1937), to approach the sac transthoracically and to suture its fundus at a high level so that it will remain empty and will not further enlarge. In several cases diverticula have been successfully excised by a thoracic approach (Clairmont, 1927; Barrett, 1933.

The roentgenogram shown (Fig. 2), was taken recently of a physician, aged 72, who has moderate dysphagia as a result of a large cervical diverticulum. Interestingly enough, he has a smaller sac just above the diaphragm and many diverticula of the colon.

Benign Tumors

Benign growths have been observed occasionally (polyps, papillomas, lipomas, fibromas, adenomas, epithelial cysts, dermoid cysts, leiomyomas, rhabdomyomas and angiomas) (Garretson and Hardie, 1928; Patterson, 1932), but they occur rarely and are often asymptomatic. When they are pedunculated they may be removed through an esophagoscope. A few reports have been written of benign tumors which caused death by occlusion of the esophagus or by pressure against a lower lobe bronchus, resulting in fatal bronchiectasis. It is conceivable that one of these benign tumors will be removed surgically some day, before extensive regional damage has occurred.

Impermeable Strictures

At one time efforts were made to replace the occluded esophagus by inverting the stomach into the thorax, but the operations failed for many reasons. The successful method has been to bring the upper end of the divided cervical esophagus out to the skin, and later to connect it with the stomach either by a rubber tube or by a conduit of skin and jejunum.

Congenital Atresia

When a baby is born who regurgitates his feedings, chokes and becomes cyanotic, and then exhibits rales in the lungs, the diagnosis of congenital atresia of the esophagus should be made. Eight times in ten there will be a blind pouch above, and a tracheo-esophageal fistula below, as shown in the accompanying diagram (Fig. 3). If such a fistula is present, the stomach and intestines will fill with air within a few hours, and there will be found abdominal tympany and a characteristic appearance of distension by X-ray (v. Gilse, 1925; Vogt, 1929; Reid, 1932).

The story of attempts to relieve this condition is one of ingenious perseverance. About 65 per cent of the patients have other anomalies, predominantly anal atresia, but usually they are compatible with life (Plass, 1919). Gastrostomy and jejunostomy have been performed many times, but have never been successful because of regurgitation through the lower esophagus into the trachea. If the cardia is tied off, the mucosal secretions back up into the lungs and within a few days cause bronchopneumonia. The most direct approach to the problem is to open the thorax and there interrupt the fistula. This has been done, but although apparently feasible, thus far it has been unsuccessful (Richter, 1913; Bohrer, 1936. The nearest approach to a live baby has come through the efforts of Leven (1936), whose two infants lived 98 and 53 days, respec-

tively, after the following procedure: under local anesthesia the lower portion of the esophagus and the upper half of the stomach were gently freed and brought out upon the abdominal wall just below the xiphoid cartilage. A catheter for aspiration was placed in the lower esophagus, and a tube was inserted into the stomach for feeding. The angulation at the level of the wound prevented passage of gastric contents upward into the esophagus.

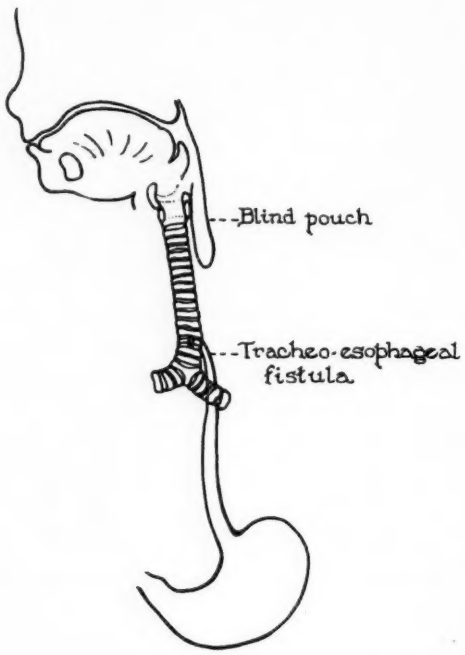

FIGURE 3. *Diagram of the most common congenital anomaly of the esophagus. The newer operations give promise of relief for this condition.*

A constant threat to these infants, no matter what is done to prevent reflux through the fistula, is the overflow from the contents of the upper blind sac into the trachea and lungs. Leven attempted to prevent this by carrying an aspirating tube transnasally into the blind pouch, but the child developed bilateral acute otitis media, a frequent sequel to the presence of indwelling catheters in infants. This complication depends, apparently, on the horizontal position of the eustachian tubes during early childhood, whereby pharyngeal secretions enter the middle ear more easily than in the adult.

The logical step in a further attack on the problem of congenital atresia of this type is to combine Leven's principle with an opening of the blind pouch to the skin. It should then be possible, later on, to connect the upper esophageal fistula with the gastrostomy tube, and it is not improbable that the tracheo-esophageal fistula could be closed by the use of a sclerosing solution, such as silver nitrate, applied by way of a bronchoscope. Direct attack on the fistula is an attractive alternative and should be tried again in an infant who is in good condition.

Conclusion

This rapid review has been designed to stimulate interest in a relatively new field of surgery which undoubtedly deserves support. It should be recalled that the development of surgery of the thorax has been the work of many men over a period of fifty or sixty years. Progress has been particularly rapid since 1930, and many of the lesions for which surgical treatment is indicated may now be approached with a reasonable likelihood of success.

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THE TOXIC MANIFESTATIONS OF SULFANILAMIDE

EDWARD J. WEST, M.D.

CHARLES V. CHAPIN HOSPITAL, PROVIDENCE

It must be borne in mind that the administration of sulfanilamide and its derivatives is not entirely without danger.

Symptoms due to the toxic or deleterious action of the drug may be divided into three classes: first, those due to the direct toxic effect, such as anorexia, nausea, vomiting; second, those which are at present considered due to an individual idiosyncrasy to the drug, such as hemolytic anemia and agranulocytosis; and third, those effects in which the action and significance are still not clear, namely, hyperpyrexia and the cutaneous reactions.

In the first group of so-called direct toxic effects which have been widely recognized and reported are dizziness, anorexia, nausea, vomiting, headache, malaise, lassitude, drowsiness, acidosis, and cyanosis. Long and Bliss,[19] in an article read in November, 1936, and published in May, 1937, reported that patients receiving this drug often complained of dizziness, anorexia, nausea, and vomiting. They also described another toxic manifestation in the form of cyanosis.

From the Charles V. Chapin Hospital.

The final paper in a symposium on Sulfanilamide, presented before the Providence Medical Association, at the meeting on April 4, 1938. The other papers have been printed in the September and October numbers.

These symptoms are described as direct toxic action because on withdrawal of the drug they rapidly disappear and in many cases are distinctly lessened or prevented by smaller dosage. The gastro-intestinal symptoms are usually mild and do not contraindicate the drug although one report states that ten per cent of their patients were unable to tolerate the drug at all.[27] In exaggerated cases, a change in the drug or the method of administration is usually all that is necessary. An attempt is made to explain these effects on the basis of circulatory action but the preparation, relative irritability, psychic effect, and the acidity of the stomach all need be considered.[23]

Cyanosis is a little more difficult to explain and is probably the most important of these reactions as it may be associated with methemoglobinemia or sulfhemoglobinemia. Long and Bliss[19] noted cyanosis in three-fourths of their patients treated with sulfanilamide but they did not consider that it warranted stopping treatment. They also reported a fall in the carbon dioxide combining power of the blood in practically all their patients. Southworth[28] also noted that cases treated with this drug showed a drop in the carbon dioxide combining power and reported the development of clinical acidosis in two patients.

Marshall and Walzl,[29] in making a study of this problem of cyanosis, found that the oxygen-carrying capacity of the blood was not always reduced and that not more than traces of non-functional iron pigment (methemoglobin) were present in the blood of these cyanotic patients. They felt that cyanosis was not due to non-functional iron pigment and questioned the statement that methemoglobin is the principal cause of cyanosis. They concluded that the cyanosis and dark color of the blood resulted from the presence of a black oxidation product of the drug which stains the red blood cells.

Colebrook and Kenny[30] first called attention to the occurrence of sulfhemoglobinemia. They reported two series of cases of puerperal sepsis and, in the first series of 38, there were three cases of sulfhemoglobinemia. In the second series [31] of 26 similar cases, there was no evidence of this condition and the only difference in the two groups was that magnesium sulphate was withheld in the second group.

Paton and Eaton[32] also made a study of this problem and found that magnesium sulphate, when

given with sulfanilamide or even within two or three days preceding its administration, gave rapid rise to sulfhemoglobinemia, in most persons, even with small doses of the drug. Frost[33] and others, however, have reported sulfhemoglobinemia in cases in which magnesium sulphate was not used.

Archer and Discombe[34] made further studies on this subject and it is their opinion that sulfhemoglobin is formed from the excess hydrogen sulphide produced by bacteria in the bowel and that any preparation liable to produce a watery stool will produce the same effect in that it favors bacterial growth. For that reason, a low residue diet with low ration of eggs, because of their high sulphur content, is suggested.

Methemoglobinemia and sulfhemoglobinemia have been found to occur rather frequently. One report[35] of the examination of the bloods of 53 out of 58 cyanotic patients receiving this drug showed evidence of sulfhemoglobinemia in thirteen, methemoglobinemia in twenty-four, and both in eight cases.

The most serious complications which may arise from the use of sulfanilamide are acute hemolytic anemia and granulocytopenia. The benzene nucleus in sulfanilamide and its derivatives has caused many to regard these drugs as a potential danger in depressing the blood cells such as has occurred with other drugs, notably aminopyrene.

Within the past year, reports have reached the literature of at least thirteen cases of acute hemolytic anemia and seven cases of granulocytopenia. In many of these reported cases, the overwhelming infection makes the possible secondary reaction to the drug confusing as to the etiology of the anemia.

Harvey and Janeway[36] reported three cases of a hemolytic type of anemia and Kohn and others have reported similar cases. Borst[37] reported the first death from this group of drugs in June 1937. This case, however, had previously been diagnosed thrombocytopenic purpura in 1926 and died following a rapid drop in the white blood count. Young[38] reported a case of fatal agranulocytosis in which death occurred five days after the drug had been stopped. Schwartz[39] reported a fatal case which had previously had thirty-two injections of Mapharsen together with other anti-syphilitic treatment but, as these had been stopped some eight weeks previously, they were ruled out as an etiological factor. McIntosh[40] reported a baby developing granulocytopenia under small doses of the drug.

The total dosage in these cases was not unusual. It was less than 750 grains in seven cases and ranged from 60 grains in the case reported by Kohn[41] to 152 grams (2280 grains) in another.[42]

Among the secondary effects of the drug, the action at present not being clear as to whether it is a direct toxic effect or an individual idiosyncrasy, are febrile reactions and skin eruptions. These symptoms more often occur together but may appear singly. Fever, alone, naturally offers a problem in deciding whether it is due to the drug or to the infection for which it is being given.

Long and Bliss[19] early reported that this group of drugs produced one toxic effect, namely, fever. When this occurred, the drug was stopped for two or three days and if the temperature dropped to normal, the rise was considered due to the drug.

Hageman and Blake[48] reported fever in 21 of 134 cases receiving sulfanilamide. The fever, which varied from normal to 106°, appeared in from seven to 10 days after therapy was begun and was accompanied by a morbilliform rash in about half of the patients. The fever was apparently independent of the drug concentration as it appeared in the majority of cases after the dosage had been reduced. The duration was from two to four days and the rash, when present, usually subsided with the fever. These authors suggest that this reaction is comparable to that of serum sickness.

Skin rashes and other cutaneous reactions are rather common secondary effects and many reports have reached the literature in the past year. In a study of this problem, Schwentker and Gelman[44] found ten cases out of 180, or 6%. Rash developed as early as the third day but in half the cases it appeared between the tenth and fourteenth day. It was described as distinctly morbilliform in appearance, developing rapidly without any prodromal symptoms and usually within twelve hours, accompanied or preceded by malaise and fever. The rash disappeared rapidly on withdrawal of the drug and reappeared in a less intense form if the drug was again administered. They also reported that the eruption faded, but more slowly, even if the drug was not discontinued. Another author[45] states that in many respects the rash resembles that of the reaction usually attributed to the barbiturates.

Recently, severe skin reactions have been reported following exposure to direct sunlight during the course of sulfanilamide therapy. Newman and

Sharlit[46] have observed ten such cases in which the patient showed a skin eruption on those areas exposed to the sun's rays. The skin became deep red with a violaceous tinge and there was intense itching, and fever in some cases. If the sulfanilamide were withdrawn and exposure to sunlight avoided, the rash disappeared in about a week, but could be made to return if sulfanilamide were again given. Others have reported similar cases and it is generally agreed that ambulatory patients receiving the drug should be instructed to avoid exposure to direct sunlight.

Other complications have been reported but they are, in comparison, less common and in some there is doubt as to what extent sulfanilamide is implicated.

The catastrophe of last fall involving the so-called "Elixir of Sulfanilamide—Massengill," in which at least seventy-three patients lost their lives, need perhaps only be mentioned.[47] Sulfanilamide can now be exonerated as all investigation since then has shown that the diethylene glycol used as the solvent is a cumulative poison causing marked kidney destruction.

There is still, of course, considerable doubt as to the cause and significance of many of the recognized secondary reactions to this drug, and, until more is known of the contraindications, it is perhaps safer to use discretion with its use in the face of toxic signs. This is, naturally, well recognized in the literature and one author[48] concludes that it is a marvelous but dangerous drug and should be used only by careful observers capable of watching their cases. In New York City and California, the sale of the drug has been restricted.[49,50] Some observers report practically no untoward reactions, stopping the drug with the first toxic manifestation with consequent restriction of the therapeutic effect.

The toxic symptoms of headache and nausea are of little concern but at times they may warrant changing the method of administration. It is agreed, however, that patients tolerate the drug better when kept in bed, that the young tolerate it better than the aged, and also that males are better able to tolerate it than females. Infants tolerate the drug comparatively well.

Cyanosis warrants consideration because of its association with methemoglobinemia and sulfhemoglobinemia. When it occurs, the patient should be watched carefully for any sign of dyspnoea and most authors advise a routine spectroscopic examination of the blood on the appearance of this symptom.

Methemoglobinemia is perhaps present, to a degree, in a large percentage of cases and does not interfere with treatment. In marked cases it disappears rapidly when the drug is stopped and oxygen administration is distinctly helpful.

Sulfhemoglobinemia, on the other hand, is distinctly more significant, longer lasting, and responsible for many symptoms and pathological changes. It is self-evident that the drug should be withdrawn immediately. Oxygen is of no value as the oxygen-carrying capacity of the blood is impaired for as long as six weeks. When this condition occurs, blood transfusions and intravenous saline and glucose are indicated.

One author[51] advises that sulphur and any preparations that contain it should be avoided. The saline and anthracene group of aperients and laxatives, the aniline derivates (phenacetin and acetanilide), the phenylhydrazine derivatives (antipyrine and aminopyrine), and the sulphonmethane group all should be avoided during treatment with this drug.

Routine blood counts are recommended by many authors and any significant drop can serve as a warning of the blood dyscrasias. For the same reason, jaundice is very important. Fortunately, the occurrence of acute hemolytic anemias and granulocytopenia is extremely rare as a complication, but each must be considered as a distinct possibility.

In the 300 odd cases treated with sulfanilamide at the Charles V. Chapin Hospital, there have been no serious toxic reactions. We have noted nausea, malaise, anorexia, dizziness, and lassitude in a large percentage of our cases, the degree of these symptoms being almost directly proportional to the amount of the drug given. Nausea and vomiting were severe enough to warrant stopping the drug in only five cases.

Cyanosis was noted in about three-fourths of the cases and ranged in intensity from a mild bluing of the lips to a rather intense slaty appearance of the skin, lips, and nail beds. Here again, in most cases the degree of cyanosis was almost always proportional to the dosage. In no case, however, was the drug stopped because of this symptom.

The carbon dioxide combining power was found to be reduced in all those cases tested ranging from 50 to 39 volumes percent. It is worthy of note that a subsequent CO_2 reading in the patient with 39 rose to 47 after giving sodium bicarbonate, although the concentration of sulfanilamide in the blood remained approximately the same.

The percentage of sulfanilamide in the blood and spinal fluid was determined in several cases and it was noted that in most cases the spinal fluid percentage very nearly approximated that of the blood and exceeded it in one case. This is probably because the amount in the blood fluctuates more than does that in the spinal fluid. The results in another case are of interest. A patient was given 80 grains of sulfanilamide by mouth. Three and a half hours later, the concentration in blood and spinal fluid showed seven and five milligrams per 100 cc respectively. This shows a satisfactory concentration can be attained earlier than is commonly believed.

The one hundred routine cases of scarlet fever treated with sulfanilamide afford a good opportunity for study of reactions because of the uniform dosage given over a period of 4 weeks.

The symptoms listed above were noted but were usually mild and in only one instance was nausea and vomiting the cause of withdrawal of the drug. There were, however, sixteen patients in this group of one hundred who showed skin eruptions during the course of treatment. These consisted, for the most part, of a maculo-papular rash starting on the elbows or knees and spreading, in some cases, to the trunk and face. In only five of these cases was there any complaint of itching and in only one of these was it severe. In three cases the rash was a diffuse, blotchy, deep red eruption slightly raised from the surrounding skin and giving the appearance of an intense measles rash. The mucous membranes were not affected. The rash was accompanied by a fever of 104° or higher in three cases, a slight elevation (100-101°) in ten cases, and no rise in temperature in the other three.

The rashes occurred on the eleventh day of administration of the drug in seven cases, and in the remaining nine anywhere from the fourteenth to the twenty-fourth day. Only two of the above rashes were severe enough to cause anxiety. They were both accompanied by edema of the face and extremities, and were in one case followed by hemorrhagic spots in a number of the lesions and profuse peeling of the skin three or four weeks after the rash, or eight weeks after the onset of the scarlet fever. In eight of the sixteen cases, the drug was omitted and the remaining eight cases received the same dosage throughout the isolation period of four weeks. The rash disappeared in all cases but the process was distinctly quicker in those cases where the drug was withdrawn.

In the entire group of over 300 cases, twelve similar rashes and elevated temperatures were noted. It is worthy of note that in four cases in which the drug was withdrawn because of hyperpyrexia, rash, or both, the symptoms reappeared within twenty-four hours after resuming the dosage. In one case a deep red macular rash appeared within twenty-four hours after a dose of ten grains. In another case this process was repeated twice.

We have used this drug in several diseases, many with varied complications, in ages from one month to eighty-five years, in doses as high as 198 grains in one day, and as much as 5,000 grains over a period of weeks without serious reactions. In our experience, then, it is a comparatively safe drug.

Conclusions

1. The therapeutic effect of these drugs is at present considered due, in a large part, to its bacteriostatic action resulting in a slower rate of increase of the organisms and thus enabling the host to dispose of the bacteria faster than they are produced.

2. Our results were favorable in the more resistant and severe forms of cervical adenitis, acute suppurative otitis media, pharyngitis, tonsillitis, and peritonsillar abscess.

3. Its value, in our small group of toxic scarlet fever cases, is questionable.

4. Good results were obtained in the treatment of cellulitis in spite of one death.

5. In the treatment of erysipelas, the results were exceptionally good although there were four deaths. The progress of the infection was promptly arrested and the course markedly shortened.

6. The three cases of streptococcal meningitis are exceptional and offer most convincing evidence of the efficacy of the drug.

7. The results in epidemic meningitis have been equally good. With a corrected mortality rate, there would be 100% recovery.

8. In our experience, the effect of the drug in gonococcal infections has been somewhat indifferent. We have not had the good results reported by others.

9. No other drug should be administered with sulfanilamide except sodium bicarbonate.

10. Ambulatory patients receiving the drug should be warned against exposure to direct sunlight.

11. In the face of most toxic symptoms, the drug should be discontinued.

12. Our experience has been that sulfanilamide in adequate dosage is more effective than other forms of therapy in several conditions but not in all. It must be used with discretion and is not a panacea.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

of *Rhode Island Medical Journal*, published monthly at Providence, Rhode Island, for October, 1938.

State of Rhode Island } ss.
County of Providence }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Albert H. Miller, M.D., who, having been duly sworn according to law, deposes and says that he is the Managing Editor of the *Rhode Island Medical Journal*, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Rhode Island Medical Society, 106 Francis Street; Managing Editor, Albert H. Miller, M.D., 106 Francis Street.

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ALBERT H. MILLER, M.D.

Sworn to and subscribed before me this 29th day of September, 1938.

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(My commission expires June 30, 1941.)

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SULFANILAMIDE

Elsewhere in this issue of the JOURNAL is the final paper in a symposium on Sulfanilamide which was presented before the Providence Medical Association last April. It is felt by the Editors that these articles deserve careful reading by every physician in this community. The article by Dr. West should be of particular interest, because in it he deals with the toxic manifestations of sulfanilamide.

It was only two short years ago that the profession first learned of this new therapeutic aid. The dramatic response which occurs in certain infections is as amazing to us today as it was then. As a result, some physicians have been inclined to use it freely in conditions in which there is no clear-cut indication for its use. There are reports in the literature of untoward reactions, and, in some cases, tragic consequences from its legitimate administration. All the more reason, therefore, that we should learn all we can of the pharmacologic action of this chemical, the better to recognize those side actions that may inadvertently occur under its proper administration. Dr. West has shown us in what conditions we should give sulfanilamide and has clearly pointed out the toxic manifestations that might occur. It is up to the physician to obey the old precept: "Forewarned, forearmed."

THE COMMON COLD

Now that the days are becoming shorter and chillier we are reminded that the time is fast approaching when acute disease of the respiratory tract becomes more of a problem than at any other time of the year. Statistical studies have shown that the lower the mean temperature the greater the incidence of the common cold and of influenza and pneumonia.

The importance of the common cold is not due to its prevalence only, for when uncomplicated it is an annoying but rather insignificant malady, but to the fact that it is seldom uncomplicated and is usually the starting point for pharyngitis, laryngitis, trachitis, sinusitis, tonsillitis, bronchitis or even in some instances pneumonia. Recent research has pointed to the probability, now rather definitely established for influenza, that common colds are caused by a filterable virus. It is beyond question transmitted from person to person like other infectious diseases. This is borne out by the common experience of seeing a "cold" appear in one after another of the members of a family. What then, one may ask, of the traditional idea that one "catches cold" by chilling his body surface—as for example when he sits about with wet feet or in a draught. We must admit the importance of this consideration and the answer is that by chilling the body surface we cause reflex changes in the blood supply of the mucous membranes of the nose and throat and both locally and generally reduce resistance to infection. Colds, if uncomplicated, probably last not more than three or four days. The congestion of the the nasal membranes with discharge, the initial sore throat, which may or may not occur, and the general feeling of discomfort and lassitude are familiar to all. The one fact, however, that is of real importance and that has been amply substantiated by research is that in the presence of a cold other micro-organisms of disease become much more active and may go on to produce inflammation of various parts of the breathing apparatus often with serious results.

Treatment of colds is very unsatisfactory. It is probable that they will, if uncomplicated, run a short course in spite of any treatment now known although beyond a doubt certain measures tend to relieve symptoms and make them more bearable. Hot baths, hot foot baths, keeping the body warm, hot applications or massage to the back and neck are all helpful. The early use of mild antiseptics, especially the silver preparations argyrol, neosilvol and others have their advocates but it must be remembered that swallowing a large amounts of these substances, as often occurs in the case of children treated by over-enthusiastic mothers, may result in the deposition of silver salts under the skin especially in the face and give rise to the permanent leaden graying of the complexion known as "argyria." The use of substances which shrink the membranes of the nose and give relief from the discharge or coryza must be undertaken with cau-

tion as over-use may produce an instability of the nasal blood vessels leading to vaso-motor rhinitis. The milder salicylate drugs, of which acetyl salicylic acid is the commonest, make the symptoms of a cold easier to bear but probably have no effect whatever on its course. Bicarbonate of soda if taken with them makes them perhaps less irritating to the stomach.

Rhode Island Hospital

REUNION OF FORMER INTERNS

The reunion of former interns of the Rhode Island Hospital which scored such a success five years ago was repeated on Friday and Saturday, September 9 and 10, 1938. The total registration was 272. Sixty-six former interns came from out of town. Dr. J. Edgar Paullin of Atlanta, Georgia, came the greatest distance. Dr. Gardner W. Allen of Boston, Massachusetts, was held in honor as the earliest graduate present.

Dr. Herman C. Pitts was the General Chairman. Dr. Elihu S. Wing arranged the program. Dr. Bertram H. Buxton was Chairman of the Entertainment Committee.

The morning programs were designed to demonstrate progress in the past five years. In the operating rooms there were operative clinics by the surgical and gynecological departments and the departments of eye, ear, nose and throat. Demonstrations were staged in the departments of X-ray, physiotherapy, pathology, cardiology, bronchoscopy, in the fracture clinic and the gastro-intestinal clinic.

The Friday morning program at the Peters House Auditorium was opened by Dr. Harold G. Calder who showed cases from the pediatric service. Drs. Charles A. McDonald, Robert J. Williams, Howard Ives and Milton Korb showed a case of brain tumor with choked disk, a psuedo brain tumor, a case of gliostoma multiforme and brains prepared by Rossett's bakelite process. Drs. Carl D. Sawyer, F. Ronchese and Philip Batchelder showed cases from the dermatologic service:—syphilis, epithelioma adenoides cystica, neuro-fibromatosis, lymphangioma telangiectasis. A practical demonstration of electro-encephalography in a case of petit mal by Dr. Herbert Jasper was introduced by Dr. Arthur H. Ruggles. Drs. Alex. M. Burgess and Palmer Congdon demonstrated the value of 95% oxygen in various conditions, especially in subcutaneous emphysema. Dr. Michael L. Mullaney illustrated some dental conditions of medical interest with lantern slides. Dr. Kalei K. Gregory reported 103 cases of cerebro-spinal meningitis from the Charles V. Chapin Hospital with a mortality of 38.8 per cent. Dr. William P. Buffum spoke briefly on allergic factors in children. Dr. Walter Weigner spoke on insulin shock in mental disease, Dr. Charles F. Gormly on rabbit sera in pneumonia. From the Thoracic Clinic, Drs. Halsey DeWolf and Philip Batchelder showed a case of Hodgkins Disease affecting axillary and mediastinal glands, treated with X-ray with manifest improvement. Dr. William P. Davis showed a case of pulmonary abscess illustrating the steps in treatment.

At 12:00 noon, the Tumor Clinic was introduced by Dr. Herman C. Pitts. Dr. B. Earl Clarke and associates showed the following cases:—Ewing's tumor of the temporal region, extra-osseous osteogenetic sarcoma, Paget's Disease of the nipple in a young woman of thirty-three, mixed tumor of the parotid, zanthomatosis, neurogenic sarcoma of the neck.

At 1:00 P. M. luncheon was served in the Aldrich House, following which a group picture was taken in front of Ward F.

The Friday afternoon program was given in the Aldrich House Auditorium. It consisted of papers by visiting former interns. The General Chairman presided. The program:—

1. Detachment of the Retina (Moving Picture Demonstration)
   Dr. John P. Macnie, Instructor in Ophthalmology, College of Physicians and Surgeons, Columbia University, New York City, New York
   Discussion by Dr. Thomas F. Capeles, Hale Hospital Staff, Haverhill, Mass.
2. Peaks and Pioneers in the History of the Thyroid
   Dr. Nat H. Copenhaver, formerly with the Mayo Clinic, now Surgeon to The King's Mountain Hospital, Bristol, Tennessee
   Discussion by Dr. Carl J. Geiger, Assistant Professor of Medicine, Syracuse University, Syracuse, New York
3. Nasal Allergy
   Dr. Harold G. Tobey, Instructor in Laryngology, Harvard Medical School, Boston, Massachusetts

Discussion by Dr. Davis T. Gallison, Instructor in Medicine at Tufts Medical School, Boston, Massachusetts

4. Some Aspects of Non-Tuberculosis Thoracic Surgery (Lantern Demonstration)
   Dr. Reeve H. Betts, Associated with Dr. Richard Overholt, Boston, Mass.
   Discussion by Drs. Ralph A. Goodwin and Pat H. Imes
5. Pathology and Treatment of Ante Partum Hemorrhage (Lantern Demonstration)
   Dr. Arthur H. Morse, Professor of Obstetrics, Yale School of Medicine, New Haven, Connecticut
   Discussion by Dr. Delos J. Bristol, Jr., Instructor in Obstetrics in the Harvard Medical School, Boston, Massachusetts
6. Cardiovascular Syphilis (Lantern Demonstration)
   Dr. James E. Paullin, Professor of Clinical Medicine, Emory University Medical School, Atlanta, Georgia
   Discussion by Drs. W. Walter Street, Associate Professor of Medicine, Syracuse University, New York; and B. Earl Clarke

The Friday evening program was held in the Aldrich House Auditorium. The speakers were Dr. Albert D. Mead, President of Board of Trustees; Hon. Jesse H. Metcalf, President Emeritus, Board of Trustees; Dr. William O. Rice, Superintendent; Dr. John M. Peters, Superintendent Emeritus; Dr. Charles O. Cook, President of Staff Association. After this program, Mr. Harry Sheer entertained the meeting with some mystifying feats of legerdemain. A smoker held at Peters House completed the festivities of the day.

An exhibit of the works and letters of Usher Parsons, M.D., in the Peters House, arranged by Dr. Wilfred Pickles, attracted deserved interest.

Saturday morning, operative clinics were again held in the operating rooms. At the Peters House Auditorium the program was opened by Dr. Russell S. Bray who demonstrated the flexible gastroscope. Dr. Albert H. Miller gave a demonstration on posture in anesthesia, illustrated with lantern slides. Dr. Frank B. Cutts spoke on gout, Dr. Henry E. Utter spoke on toxoid in tetanus, Dr. Albert A. Barrows described different methods of surgical treatment of infections of the hand. Drs. Albert L. Midgley and Francis H. Chafee demonstrated with lantern slides the progress of a fatal case of noma. Dr. Anthony V. Migliaccio read "Early versus Delayed Operation in Acute Cholecystitis—A Critical Review of Cases at the Rhode Island Hospital." Dr. Eric Stone showed motion pictures in color, demonstrating supra-pubic cystotomy by the Kidd Method. Drs. Russell O. Bowman and Herman C. Pitts spoke on cancer research at the Rhode Island Hospital. Dr. George W. Waterman made a further report of radium treatment of the cervix. Dr. Russell R. Hunt showed X-ray aids in diagnosis in pregnancy. Dr. Paul Appleton gave a motion picture demonstration of resuscitation of the new-born.

At 12:00 noon a Clinical-pathologic Conference was conducted by Dr. B. Earl Clarke. Cases were presented by Drs. Charles O. Cooke and Cecil C. Dustin. The notes on this conference will be printed in a later number of the *Journal*.

Saturday afternoon, an old-fashioned Rhode Island Clambake was held at the Squantum Club, providing a proper termination for this successful reunion.

Dr. Donald J. Flanagan of Somersworth, New Hampshire, on July 1st became Resident Physician at the Jane Brown Hospital. Dr. Flanagan is a graduate of New York University and Boston University Medical School. He was intern for two years at the Binghamton City Hospital, Binghamton, New York.

August 15th, Dr. John Morrison of Phillipsburg, New Jersey, began a two years' internship. Dr. Morrison is from Dartmouth College and Dartmouth Medical. He is a graduate of Pennsylvania Medical School. Previous to coming to the Rhode Island Hospital, Dr. Morrison interned for one month at Providence Lying-In Hospital.

July 1st, Dr. Henry Miller of New York City began a year's residency in the electrocardiograph department. Dr. Miller is a graduate of New York University and University of California Medical School. He was intern and resident in medicine in San Francisco Hospital for two years before coming to Rhode Island.

July 1st Dr. Samuel Bachrach of Maynard, Massachusetts, began a one-year pathological internship. Dr. Bachrach is a graduate of University of Maine and Tufts Medical School.

Dr. Thomas A. Martin, who spent two years as intern at the Rhode Island Hospital and at the Lying-In Hospital, from November 1st, 1937, to May 31st, 1938, opened an office on July 1st at 181 Smith Street for the general practise of medicine.

Dr. Lee G. Sannella, who interned at the Rhode Island Hospital from 1935 to 1937 and was Night Superintendent for sixteen months, opened an office July 1st at 195 Thayer Street, Providence.

Dr. and Mrs. Gilmore W. Soule of Rockland, Maine, announce the arrival of a son, Daniel Weston, on Sept. 7th, 1938.

Dr. Ralph D. Richardson, who interned at the Rhode Island Hospital 1935 to 1937 and at the Massachusetts Memorial Hospitals for one year, was Night Superintendent at the Rhode Island Hospital from July 1st to September 16th. On October 1st Dr. Richardson expects to go to the Mayo Clinic on a Fellowship in Surgery.

July 1st Dr. Edmond Brown Sinclair, who has been resident physician at the Jane Brown Memorial Hospital for a year, became assistant resident in pediatrics at St. Luke's Hospital in New York City.

July 1st, Dr. Carlton Ould of Roanoke, Virginia, began a one year's pathological internship. Dr. Ould attended Roanoke College and is a graduate of Duke University and Duke Medical School. Previous to coming here, Dr. Ould interned for fifteen months at Duke Hospital in Durham, North Carolina.

July 1st, Dr. G. Edward Crane opened an office for the practice of Orthopedic Surgery with Fractures, at 223 Thayer Street. Dr. Crane interned for two years on the Fracture and Orthopedic Service. He is a graduate of Brown University and Tufts Medical College. His home is at 129 Nelson Street, Providence, R. I.

LOCAL EVENTS

Dr. Samuel Drury Clark has opened an office for the General Practice of Medicine at 28 George Street, Providence.

September 13—Dr. F. Ronchese read a paper on "Infra-red Photography in the Diagnosis of Vascular Tumors" at the 17th American Congress of Physical Therapy in Chicago.

Dr. Murray S. Danforth entertained the Amos Throop Medical Club on October 11. His subject was "Treatment of Flail Joints Following Infantile Paralysis."

Dr. George L. Shattuck entertained the Friday Night Medical Club on October 21. Dr. Charles P. Fitzpatrick read a paper on "The Relation of Epilepsy to Schizophrenia."

October 25, Dr. Edmund A. Sayer addressed the regular monthly meeting of the General Staff of the Homeopathic Hospital of Rhode Island on "The Evaluation of Antiseptics in Urinary Infections."

October 27—At the regular quarterly meeting of the Rhode Island Medico-Legal Society, held at the Medical Library, Dr. J. W. Battershall, President of the Massachusetts Medico-Legal Society, spoke on "The Medical Examiner."

RHODE ISLAND MEDICAL SOCIETY

LECTURES AT THE MEDICAL LIBRARY

Sunday afternoons at 3:30

November 6, Dr. Clifton B. Leech. "Lessons in Heart Disease."

November 13, Dr. James H. Fagan. "Diseases of the Thyroid Gland."

November 20, Dr. William P. Buffum. "Keeping Your Child Healthy."

November 27, Dr. John F. Kenney. "Medical Diagnosis from a Laboratory Standpoint." Demonstration of Anatomical Material and Diagnostic Instruments.

PAWTUCKET MEDICAL ASSOCIATION

PROGRAM FOR 1938-1939

October 20—William Dameshek, M.D., Boston, Mass.: "Anemia—Physiology and Treatment." (Lantern Slides.)

November 17—Sylvester McGinn, M.D., Boston, Mass.: "Modern Treatment of Congestive Heart Failure." (Lantern Slides.)

December 15—

January 19—Irving J. Walker, M.D., Boston, Mass.: "Clinical Aspects of Water Balance."

February 16—Charles F. McKhann, M.D., Boston, Mass.: "Immunity and Susceptibility to Disease in Infants."

March 16—Annual Meeting and Banquet. Speaker to be announced.

OBITUARY

CHARLES HENRY LEONARD, M.D.

Dr. Charles Henry Leonard died at his home in Providence, March 19, 1938. He had passed the age of 96. He was born at Madison, Indiana, December 29, 1841. Although his birthplace was in Indiana, his parents having lived there for a few years, he was a New England Yankee, his forbears and he himself spanning three centuries here. After attending school at Southbridge, Massachusetts, and at Williston Academy, he entered Yale with the class of 1864, but at the end of his sophomore year he enlisted in Company A, 45th Massachusetts Volunteer Militia and served in North Carolina, returning home with typhoid fever. He then re-entered Yale and graduated with the class of 1865, being the commencement orator and a member of Phi Beta Kappa. After this, he graduated, in 1868, from the College of Physicians and Surgeons, Columbia University. His internship was served at Charity Hospital, New York City. In 1871 he received the degree of M.A. from Yale.

Settling in Providence in 1870, he practiced here

until 1925 and was at different times Physician to Providence Dispensary, Physician to Providence Reform School, Pathologist and Admitting Physician to Rhode Island Hospital, Coroner, Attending Physician to Providence Lying-In Hospital. The most interesting aspect of his long practice of medicine was his tremendous experience in vaccination against small-pox. Starting this in 1870 he was in charge of public vaccination for the City of Providence from 1881 to 1933.

In this period of 63 years he performed over 170,000 vaccinations. Joining the Rhode Island Medical Society and the Providence Medical Association as soon as he entered practice, he was Treasurer of the State Society 1878-88 and President of the local Association in 1889 and 1890. All but the youngest members of our Association remember well how until the last three years of his life, he was the most faithful attendant at our meetings, sitting always in the front row and taking keen interest in the proceedings. In December, 1932, when he was 91, a surprise birthday party was given him at the conclusion of our meeting and he cut a birthday cake.

It was Dr. Leonard's nature to enter enthusiastically into those matters that interested him. Botany was one of these. Walking frequently by the house of the writer he would enter briskly into the garden, select some plant, give a short informative talk about it and hasten away again. The tupelo or pepperidge tree was an especial hobby of his.

Dr. Leonard was a life director of the American Bible Society, a life member of the Board of Foreign Missions and for 35 years deacon of the Union Congregational Church. Prominent in the Grand Army of the Republic, he joined Slocum Post in 1891 and was the last veteran left in Providence. With his beard and full uniform of the order, he made a striking picture, which will linger in our memories.

Two daughters survive Dr. Leonard — Miss Grace F. and Miss Mary B. Leonard.

PETER PINEO CHASE, M.D.

RECENT BOOKS

THE HEART IN PREGNANCY. By Julius Jensen, Ph.D. in medicine, M.R.C.S. (England), L.R.C.P. (London), pp. 371, Cloth, $5.50, The C. V. Mosby Company, St. Louis, 1938.

THE HEART IN PREGNANCY by Dr. Jensen should fulfill a very definite need in the field of obstetrics with respect to the heart. Its first twenty-eight chapters deal with the mechanics of this problem; the last twenty-three chapters with abnormal heart action and organic diseases of the heart with reference to pregnancy.

It is a book for the general practitioner, internist, and cardiologist as well as the obstetrician for it intimately touches upon their every day experiences. The carefulness with which Dr. Jensen has proceeded is shown by the fact that he spent over four years recording data from his extensive observations and consulted over 1,000 authorities in the field of literature from all parts of the world. Up to the publication of this book, the subject of the heart in pregnancy was largely confused in the voluminous literature by differences of opinion. Dr. Jensen presents the best of these opinions and then draws his conclusions based on his own exhaustive studies.

The all important subject of rheumatic heart disease in pregnancy is very thoroughly discussed beginning with statistical evidence in detail with conclusions. He then proceeds to diagnosis and prognosis following with a very careful survey of congestive failure in pregnancy. Factors such as age, type, and effect of heart lesions found are discussed with the management of these cases including especial reference to interruption of pregnancy not omitting methods of delivery with abundant statistical data quoted. A chapter on anaesthesia for cardiacs in obstetrical cases is given and discussed with conclusions and a presentation of methods used at the St. Louis Maternity Hospital so successfully.

Bacterial endocarditis, syphilis, congenital heart disease, degenerative heart disease, and hearts influenced by chest deformity and thyroid disease are well covered. Dr. Jensen frequently resorts to case reports to exemplify his points.

When to interfere and not to interfere in pregnancy complicated by heart disease is often a difficult problem. I am sure this book will make it much easier for those faced with this decision. Certainly this very comprehensive book should be in the hands of all those dealing with these problems. Finally, I would like to quote from the foreword of the book by Dr. David Barr, Associate Editor of the *Annals of Internal Medicine* and Regent of the American College of Physicians: "From the assembled data it appears that many of the dogmas of the past were without sound foundation. Review of the evidence as a whole leads to considerable optimism and the conclusion that many cardiac patients, even those with relatively extensive organic damage, may by adequate protection and medical care, complete pregnancy and bear children without evident permanent damage."

ELIHU S. WING, M.D.

PNEUMONIA AND SERUM THERAPY. By Frederick T. Lord, M.D., and Roderick Heffron, M.D., pp. 148, Cloth, $1.00, The Commonwealth Fund, New York, 1938.

This handbook, the senior author of which is a professor emeritus of Harvard Medical School in clinical medicine and an authority on diseases of the chest, may be regarded at once as official and dependable. It is a revision of "Lobar Pneumonia and Serum Therapy," published in 1936 by the same authors. The change of title seemed indicated, in view of the fact that now specific serum therapy has been made available and effective for atypical cases of lobar pneumonia and for bronchopneumonia as well. One can rest assured that the procedures advocated have been soundly tested; their value substantiated in large series of cases.

The present edition of 130 pages includes valuable additional data, compiled since 1936. This means the latest facts

pertaining to dosage; a sane discussion and evaluation of rabbit antiserum; and the results of specific treatment not alone in pneumonia of Types I and II, but in Types V, VII, VIII, and XIV as well. It contains, moreover, chapters on the clinical diagnosis of pneumonia, the factors influencing recovery, the selection of cases for treatment with specific antiserum, and methods of typing the pneumococcus.

Since medical therapy today is so much more concerned with the employment of sera of various kinds, it becomes the duty of the practitioner to have at his finger-tips an adequate knowledge of satisfactory dosages; accepted, proven methods of administration; the precautions to be employed and the tests for sensitivity and their proper interpretation; the kind of reactions, their treatment, and the influence of these reactions on further, continued serum administration and dosage. All the above can be easily learned from this volume. As a matter of fact, a regular fool-proof ritual for the administration of pneumococcus antiserum is diagramatically represented.

The Massachusetts pneumonia study under the Commonwealth Fund quite definitely revealed that antipneumococcus serum could be successfully administered under the conditions set forth in this book by the general practitioner at large. Thus, during the course of the study, 1100 physicians employed it in over 1700 patients. Moreover, the success obtained with antisera of Types I and II and the effectiveness of antisera for some of the higher types has extended the applicability of serum treatment in pneumonia and bronchopneumonia, as never before. Hence, the incorporation of an outline for the organization of pneumonia control programs as community projects is both warranted and timely.

We, therefore, whole-heartedly advocate "Pneumonia and Serum Therapy" is a necessary volume for every general practitioner, as well as a concise, reliable, and up-to-date review of the subject for the internist.

JOHN S. DZIOB, M.D.

Every doctor in New England is cordially invited to attend the New England Postgraduate Assembly to be held in Boston on November 15 and 16, 1938. The registration fee is three dollars.

November 15-16, 1938—Sanders Theater, Harvard University, Cambridge

I shall attend the New England Postgraduate Assembly. Please reserve a ticket for:

Luncheon (75 cents), November 15 Yes..... No.....

Dinner (gratis), November 15 Yes..... No.....

Luncheon (75 cents), November 16 Yes..... No.....

I am in general practice Yes..... No.....

I specialize in .....

.....M.D.

Address .....

Mail to Postgraduate Assembly Committee, 8 Fenway, Boston. In order to avoid delay at the registration desk, a check, payable to the committee, for the necessary amount may be included; if so, the registration insignia and ticket or tickets will be forwarded by mail.

NEW ENGLAND POSTGRADUATE ASSEMBLY

PROGRAM

TUESDAY, NOVEMBER 15

MORNING SESSION

Presiding Chairman: Dr. Frank R. Ober.

10:00 Dr. Hubley R. Owen. "What Are the Duties and Responsibilities of the General Practitioner in the Treatment of Fractures? Unrecognized Fractures."

10:30 Dr. Alvah H. Gordon. "The Physician's Interest in Gallbladder Disease."

11:00 Dr. Harvey B. Stone. "Preoperative and Postoperative Preparation of Surgical Patients."

11:30 Dr. Perrin H. Long. "The Practical Interpretation of Laboratory Bacteriological and Immunological Diagnoses in Relation to Infectious Diseases."

AFTERNOON SESSION

Presiding Chairman: Dr. George R. Minot.

2:00 Dr. Hubley R. Owen. "Transportation of Injured and Emergency Treatment of Fractures with Special Reference to Fractures of the Long Bones and Fractures of the Spine."

2:30 Dr. Francis G. Blake. "The Value of Antitoxin in Scarlet Fever."

3:00 Dr. Louis A. Buie. "Office Methods of Diagnosis of Anal Diseases."

3:30 Dr. Louis H. Nahum. "The Etiology and Treatment of the Cardiac Arrhythmias."

4:00 Dr. Robert T. Frank. "Endocrinology as Now Practiced."

4:30 Dr. William L. Estes, Jr. "Acute Traumatic Lesions of the Abdomen."

7:00 Dinner. Speakers, Dr. Warren F. Draper and Dr. Roger I. Lee.

WEDNESDAY, NOVEMBER 16

MORNING SESSION

Presiding Chairman: Dr. Elliott P. Joslin.

9:00 Dr. Francis G. Blake. "The Importance of Time in Serum Therapy."

9:30 Dr. William L. Estes, Jr. "Treatment of Open Wounds and the Use of Antiseptics."

10:00 Dr. Alvah H. Gordon. "Mental Complications in Heart Disease."

10:30 Dr. Robert T. Frank. "The Female Sex Hormones."

11:00 Dr. Benjamin P. Watson. "When Is Caesarean Section Necessary and When Is It Unjustified?"

11:30 Dr. Perrin H. Long. "The Clinical Use of Sulfanilamide in the Treatment of Bacterial Infections."

12:00 Dr. Harvey B. Stone. "Symptoms and Signs of Intestinal Obstruction."

AFTERNOON SESSION

Presiding Chairman: Dr. Arthur W. Allen.

2:00 Dr. Louis A. Buie. "Treatment of Common Anal Diseases."

2:30 Dr. Alvah H. Gordon. "The Diagnosis of Diseases with Coincident Enlargement of the Liver and the Spleen."

3:00 Dr. Benjamin P. Watson. "The Treatment of Delayed Labor."

3:30 Dr. Perrin H. Long. "The Uses of Newer Derivatives of Sulfanilamide in the Treatment of Bacterial Infections."

4:00 Dr. Hubley R. Owen. "Skull Fractures and Concussion."

4:30 Dr. Louis A. Buie. "Moving Pictures."